

L 43099-66

ACC NR: AP6014122

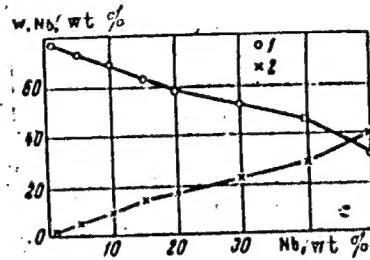


Fig. 1. Change in the tungsten (1) and niobium (2) content in the oxide scale at an oxidation temperature of 1200°C as a function of the niobium content in the alloy.

Orig. art. has: 2 tables and 5 figures.

SUB CODE: 11/ SUBM DATE: 19Nov64/ ORIG REF: 008/ OTH REF: 003

Card 2/2 MLP

ACC NR: AT6034446

(A)

SOURCE CODE: UR/0000/66/000/000/0124/0127

AUTHOR: Prokoshkin, D. A.; Vasil'yeva, Ye. V.; Chudarev, L. F.

ORG: none

TITLE: Investigation of creep in niobium alloys by the torsion method

SOURCE: AN SSSR. Institut metallurgii. Svoystva i primeneniye zharoprostnykh splavov (Properties and application of heat resistant alloys). Moscow, Izd-vo Nauka, 1966, 124-127

TOPIC TAGS: niobium base alloy, creep, titanium containing alloy, boron containing alloy, molybdenum containing alloy, torsion stress

ABSTRACT: The investigation was made on samples of niobium with 5, 8, and 10 weight percent molybdenum, alloyed with titanium (up to 10%), boron (up to 2%), and zirconium (up to 10%). A figure shows the dependence of the deformation on time for different temperatures, obtained by conventional and temperature cycle methods for a niobium alloy with 5% molybdenum and 0.5% boron. The closeness of the values of the creep rate at the same temperature, by the two methods, indicates that the temperature cycle method can be used even in the case of complex alloys. To obtain comparative values of the creep rate, the temperature interval of the experiments was varied somewhat as a function of the composition of the alloy. In particular, alloys containing 10%

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ACC NR: AT60JH46

titanium and 10% zirconium were tested at lower temperatures. A second figure shows a semilogarithmic plot of the dependence of the deformation on temperature for a large number of different alloys. The values of the effective activation energy for creep can be determined from the slope of the straight on the plot. On the basis of the experimental results the conclusion is drawn that it is not possible to establish a correlation between the activation energy for the creep and the activation energy for autodiffusion. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: 10Jun66/ ORIG REF: 006/ OTH REF: 005

Card 2/2

L 08420-67 EWT(m)/EWP(t)/ETI IJP(e) JD/NW/JG/NB/GD  
ACC NR: AT6034467 (A) SOURCE CODE: UR/0000/66/000/000/0285/0290

AUTHOR: Prokoshkin, D. A.; Vasil'yeva, Ye. V.; Lazarev, E. M. 39  
D+1

ORG: none

TITLE: Investigation of oxidation of niobium alloyed with vanadium,  
titanium or zirconium 21 21

SOURCE: AN SSSR. Institut metallurgii. Svoystva i primeneniye  
zharoprochnykh splavov (Properties and application of heat-resistant  
alloys). Moscow, Izd-vo, Nauka, 1966, 285-290

TOPIC TAGS: niobium alloy, niobium-alloy oxidation, vanadium containing  
alloy, titanium containing alloy, zirconium containing alloy

ABSTRACT: Specimens of three series of niobium-base alloys, containing  
1—15% vanadium and 1—10% titanium or 1—20% zirconium, are melted in  
an argon atmosphere, were subjected to oxidation tests in air at  
900—1200C. It was found that the oxidation rate depends on the com-  
position. The oxidation rate of the Nb-V-Ti alloys with 10% titanium  
depends primarily on the vanadium content. It gradually decreases with  
increasing vanadium content and at 1200C reaches a minimum of  
6.3 mg/cm<sup>2</sup>·hr at 5% of vanadium; then it increases and at 10% vanadium  
is 20.9 mg/cm<sup>2</sup>·hr, i.e., even higher than that of unalloyed niobium.

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L 08420-67  
ACC NR: AT6034467

The alloy containing 5% V and 10% Ti had the highest oxidation resistance. It was established that 5% vanadium reduces the oxidation rate by 2-3 times, and 10% of titanium reduces it by 3-6 times. Only zirconium, of the three contents tested, was found to increase the oxidation rate. Orig. art. has: 3 figures.

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SUB CODE: 11/ SUBM DATE: 10Jun66/ ORIG REF: 005/ OTH REF: 006/  
ATD PRESS: 5103

Card 2/2 ls

L 09074-67 EWT(m)/EWP(t)/ETI IJP(c) JD/JC/MB/CD  
ACC NR: AY6034466 SOURCE CODE: UR/0000/66/000/000/0280/0285

AUTHOR: Lazareva, I. Yu.; Prokoshkin, D. A.; Vasil'yeva, Ye. V.; Maslenkov, S. B.

ORG: none

TITLE: Investigation of the oxidation resistance of tungsten-niobium-titanium alloys

SOURCE: AN SSSR. Institut metallurgii. Svoystva i primeneniye zharoprochnykh splavov (Properties and application of heat resistant alloys). Moscow, Izd-vo Nauka, 1966, 280-285

TOPIC TAGS: tungsten ~~niobium~~ alloy, tungsten titanium alloy, tungsten niobium alloy, titanium alloy, ~~metal~~ oxidation resistant, alloy oxidation metal

ABSTRACT: The oxidation resistance of binary tungsten alloys with up to 50% niobium or titanium, and ternary tungsten-niobium-titanium alloys has been investigated. Niobium was found to be the most effective in increasing the oxidation resistance, especially at contents of up to 30%. Titanium at contents of up to 5% improves the oxidation resistance of binary alloys. At higher contents the titanium effect is negative, especially at temperatures above 1200C. Also in ternary alloys, the titanium effect is negative. Oxidation proceeds by a two-way diffusion of oxygen and metal with a preferred migration of niobium ions in the tungsten-niobium system and of titanium ions in the tungsten-titanium-niobium systems. Orig. art. has: 3 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: 10Jun66/ ORIG REF: 004/ OTH REF: 001/ ATD PRESS: 5104  
Card 1/1

L 07092-67 EWT(m)/EWP(w)/EWP(t)/ETI IJP(c) JD/JG  
ACC NR: AP6019006 SOURCE CODE: UR/0109/66/011/006/1150/1151

AUTHOR: Vasil'yeva, Ye. V.; Dyubua, B. Ch.; Yermolayev, L. A.  
Kultashev, O. K.

75  
B

ORG: none

TITLE: Emission properties of Pt-La, Ir-La, Os-La alloys

SOURCE: Radiotekhnika i elektronika, v. 11, no. 6, 1966, 1150-1151

TOPIC TAGS: electron emission, emissivity, thermionic emission, secondary electron emission, LANTHANUM, ALLOY, PLATINUM CONTAINING ALLOY, IRIDIUM CONTAINING ALLOY, OSMIUM CONTAINING ALLOY

ABSTRACT: The results are reported of an experimental investigation of thermionic and secondary-electron emission of Os-La (with a Laves phase  $Os_2La$ ), of Pt-La (with a  $Pt_5La$  phase), and of Ir-La (with an  $Ir_5La$  phase) alloys; see A. E. Dwight, Trans. Am. Soc. Metals, 1961, 53, part 1, 479; T. H. Geballe

UDC: 669.231 / 233.5.018.5:621.385.7

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L 07692-57

ACC NR: AP6019006

et al., Phys. Rev., 1965, 137, A119. The results are tabulated below:

Alloy	Work function	1600K	Max.	
			Tempr. coeff.	sec.-el. emiss.
Pt—La 0,5%	4,01	2·10 <sup>-4</sup>	1,73	
Ir—La 0,5%	2,69	4·10 <sup>-5</sup>	2,47	
Os—La 0,5%	2,71	6·10 <sup>-5</sup>	2,20	

Orig. art. has: 1 table.

SUB CODE: 20, 09 / SUBM DATE: 17Nov65 / ORIG REF: 002 / OTH REF: 002

Card 2/2 LC

ACC NR: AP7002431

(A)

SOURCE CODE: UR/0219/66/000/012/0021/0024

AUTHOR: Vasil'yeva, Ye. V.; Prokoshkin, D. A.; Belova, L. M.

ORG: Institute of Metallurgy AN SSSR (Institut metallurgii AN SSSR)

TITLE: The structure and properties of niobium-tantalum alloys containing tungsten and molybdenum

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 12, 1966, 21-24  
and inserts facing pages 48 and 49TOPIC TAGS: niobium, tantalum alloy, molybdenum containing alloy, tungsten containing alloy, alloy structure, ~~other~~ [property] metal

## ABSTRACT:

The effect of tantalum (0.5, 1, 5, 10 or 15%), molybdenum and tungsten (5% of each) on the microstructure and room and high-temperature hardness of niobium-base alloys has been investigated. The alloys were melted from 99.4%-pure niobium, 99.75%-pure tantalum, 99.65%-pure molybdenum and 99.95%-pure tungsten in a nonconsumable (tungsten) electrode, vacuum-arc furnace in an argon atmosphere. Alloy ingots were annealed at 1700°C for 50 hr. It was found that the microstructure of cast Nb-Ta alloy had the typical structure of a single-phase solid solution. With increasing tantalum content, the substructure became more distinct. As-cast Nb + 5% Ta + 5% Mo and Nb + 10% Ta + 5% Mo alloys also had a single-phase structure with

UDC: 620.17:669.293'294'27'28

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ACC NR: AP7002431

elongated grains and traces of dendritic segregation. A noticeable segregation of impurities was observed in Nb + 5% Ta + 5% W and Nb + 10% Ta + 5% W alloys. The respective hardness at 20 and 1000C of Nb + 10% Ta alloy was 180 and 105 HV. Additional alloying with 5% molybdenum or 5% tungsten increased the hardness to 198 and 127 HV or to 192 and 120 HV, compared to 150 and 90 HV for unalloyed niobium. The creep rate (calculated from the results of hot hardness tests) of alloys containing molybdenum and tantalum was the

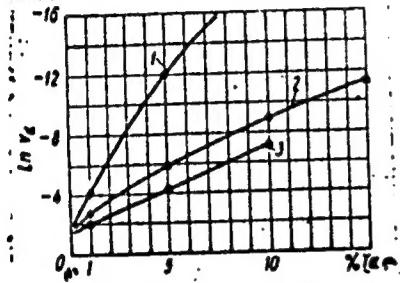


Fig. 1. Composition dependence of creep rate ( $V_d$ ) of Nb-Ta, Nb-Ta-Mo and Nb-Ta-W alloys at 1000C

lowest and that of alloys containing tantalum and tungsten the highest (see Fig. 1). Orig. art. has: 4 figures and 2 tables.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 008/ OTH REF: 003/ ATD PRESS: 5113

Card 2/2

ACC NR: AP7002131

SOURCE CODE: UR/0219/66/000/012/0031/0033

AUTHOR: Lazarev, E. M.; Vasil'yeva, Ye. V.

ORG. Institute of Metallurgy, AN SSSR (Institut metallurgii AN SSSR)

TITLE: Structure and mechanical properties of the alloys of the Nb-V-Ti system

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 12, 1966, 31-33 and  
insert facing page 48

TOPIC TAGS: niobium base alloy, vanadium containing alloy, titanium containing  
alloy, hardness, tensile strength, ductility, alloy system

ABSTRACT:

Niobium-base alloys containing 1-15% vanadium and 1-10% titanium were melted from 99.78%-pure niobium, iodide vanadium, and iodide titanium. The as-cast alloys had a dendritic microstructure which became more pronounced with increasing vanadium content. Alloys annealed in vacuum at 1400C for 25 hr had equiaxial grains. Increased titanium and vanadium content increased the hardness. The effect of vanadium is more pronounced. An increase in

UDC: 620.17:669.293'292'295

Card 1/2

ACC NR: AP7002434

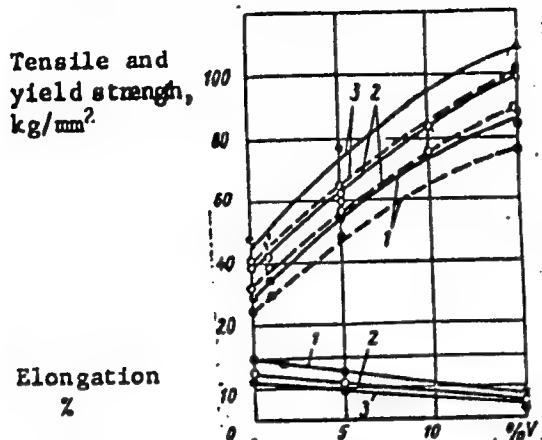


Fig. 1. Composition dependence of mechanical properties of Nb-V-Ti alloys containing 1 (1), 5 (2) and 10% (3) Ti; Tensile strength-solid lines; yield strength-broken lines

vanadium content from 0 to 15% increased the tensile strength from 47.5 to 107.5 kg/mm<sup>2</sup> in alloys containing 10% titanium and from 34.3 to 83.6 kg/mm<sup>2</sup> in alloys containing 1% titanium (see Fig. 1). The yield strength also increased with increased vanadium and titanium content. The ductility generally dropped with increasing titanium or vanadium content, titanium being more effective than vanadium. Orig. art. has: 3 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 001/ ATD PRESS: 5113

Card 2/2

L 2661-66 EWT(m)/EWP(w)/EPF(c)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/JG/WB/GS

ACCESSION NR: AT5023090

UR/0000/65/000/000/0111/0117

AUTHOR: Vasil'yeva, Ye. V.; Prokoshkin, D. A.; Chuang, Heiang-ling

TITLE: Microstructure and oxidation resistance of the alloys of niobium with tungsten, aluminum and titanium

SOURCE: Problemy bol'shoy metallurgii i fizicheskoy khimii novykh splavov (Problems of large-scale metallurgy and physical chemistry of new alloys); k 100-letiyu so dnya rozhdeniya akademika M. A. Pavlova. Moscow, Izd-vo Nauka, 1965, 111-117

TOPIC TAGS: high temperature oxidation, niobium base alloy, grain structure solid solution, titanium containing alloy, crystal defect

ABSTRACT: Tungsten is an element that toughens niobium. In most cases, however, Nb-W alloys display insufficient resistance to oxidation; this can be remedied by alloying with Al and Ti. What is more, Ti also improves the plasticity and ease of treatment of Nb, which cannot be said of Al, since if the Al content exceeds 5-10% this leads to embrittlement of the base. In this connection, the authors investigated alloys of Nb with 5, 10, and 15 wt.% W and an Al content

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ACCESSION NR: AT5023090

of from 1 to 3.5%, with the object of determining the effect of W and Ti on the oxidation resistance of the binary Nb-W alloys at 1000, 1100, and 1200°C. The alloys were prepared from pure metals in a tungsten-electrode arc furnace with an argon atmosphere, and annealed (homogenized) at 1400-1600°C for 50-200 hr. The microstructure of the alloy ingots was dendritic, with uniform grain size. Since part of the specimens was charged in polished form into the furnace, annealing resulted in thermal etching which revealed certain features of the microstructure. Individual grains displayed characteristic striation which on some acquired the form of spirals following the tracks of the branches of former dendrites. There is not yet a unified theory accounting for the nature of such effects; many factors are involved: the atmosphere in which the thermal etching takes place, and particularly its content of "active" agents -- O<sub>2</sub>, H<sub>2</sub>, H<sub>2</sub>O (vapors), H<sub>2</sub>S, etc., and their partial pressure. In addition, test temperature, the nature of the metal investigated, crystallography of the specimen, and other characteristics also are of major significance. In its ultimate appearance, following re-polishing and etching with a reagent consisting of H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub>, and H<sub>2</sub>F<sub>2</sub>, the microstructure of all the alloys represented a monophase solid solution. Oxidation resistance of the alloys was determined according to weight gain per time unit by means of periodic weighing following exposures of 1, 2, 3, 5, and 10 hr.

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to temperatures of 1000, 1100, and 1200°C in a silit furnace with an air atmosphere. Findings: as W content is increased from 5 to 10 wt.%, the oxidation rate decreases (from 19.2 mg/cm<sup>2</sup>-hr to 10.5 mg/cm<sup>2</sup>-hr). In alloys with 15 wt.% W the pattern is somewhat different: at 1000°C the oxidation rate increases, while at 1100 and 1200°C it decreases. Alloying with 5 wt.% Ti produces a very marked decrease in oxidation rate. Thus, the oxidation rate of Ti-containing alloy at 1000°C is 5.6 mg/cm<sup>2</sup>-hr and at 1100°C, 6 mg/cm<sup>2</sup>-hr. The scale from specimens oxidized at 1200° was pulverized and subjected to a X-ray analysis. At oxidation temperature of 1200°C niobium oxide was thus found to consist of  $\beta$ -Nb<sub>2</sub>O<sub>5</sub> with a monoclinic lattice and parameters:  $a = 20.39 \text{ \AA}$ ;  $b = 3.82 \text{ \AA}$ ;  $c = 19.44 \text{ \AA}$ ;  $\alpha = 115^\circ 89'$ . Roentgenograms of all the alloys clearly displayed  $\beta$ -Nb<sub>2</sub>O<sub>5</sub> lines: there were no other lines. Apparently, the scale represents a solid solution on  $\beta$ -Nb<sub>2</sub>O<sub>5</sub> base, containing oxides of the alloy elements. The ion radius of W is shorter than that of Nb (0.62 vs. 0.66  $\text{\AA}$ ). Apparently, the dissolution of W in Nb<sub>2</sub>O<sub>5</sub> results in a decrease in volume of the scale owing to substitution, i.e. the volume ratio of the oxide to the metal decreases; this results in a more compactly adhering oxide film with enhanced protective properties. Moreover, according to Wagner's theory, the addition of an alloy element with a higher valence than

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that of the base should cause an increase in the number of free electrons and a decrease in the number of lattice defects. This leads to an increase in electron conduction and decrease in ion conduction, i.e. in diffusion rate. The valence of W (6+) exceeds the valence of Nb (5+). Accordingly, W is bound to augment the oxidation resistance of Nb. The presence of Ti causes the formation of the solid solution  $TiO_2$  in the  $Nb_2O_5$  of the scale. Apparently, the dissolution of Ti makes the scale's lattice less favorable to the diffusion of oxygen ions than the lattice  $\beta\text{-}Nb_2O_5$ . Orig. art. has: 3 figures, 3 tables.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MM, SS

NO REF SOV: 007

OTHER: 005

Card 4/4

L 2660-66 EWT(m)/EPF(c)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/HW/JG/WB/GS

ACCESSION NR: AT5023091

UR/0000/65/000/000/0118/0124

AUTHOR: Prokoshkin, D. A.; Vasil'yeva, Ye. V.; Ryabyshev, A. M.

TITLE: Oxidation of the alloys of niobium with tungsten

SOURCE: Problemy bol'shoy metallurgii i fizicheskoy khimii novykh splavov  
(Problems of large-scale metallurgy and physical chemistry of new alloys);  
k 100-letiyu so dnya rozhdeniya akademika M. A. Pavlova. Moscow, Izd-vo Nauka,  
1965, 118-124

TOPIC TAGS: niobium alloy, tungsten containing alloy, high temperature oxidation,  
oxidation kinetics, gas diffusion, metal scaling

ABSTRACT: Alloys of Nb with W are of major interest, since W markedly enhances  
the high-temperature strength of Nb. But while the data on the high-temperature  
strength of Nb-W alloys unambiguously point to the favorable effect of W, the data  
on another important characteristic -- the effect of W on the oxidation re-  
sistance of Nb -- are extremely contradictory. In an effort to clarify this  
point, the authors investigated the oxidation kinetics of Nb-W alloys containing  
0.5 to 40 wt.% W, at temperatures of 1000, 1100, and 1200°C, by heating alloy

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specimens in the air for 1, 2, 5, and 10 hr, while at the same time continually weighing them. It was found that the time-dependence of the weight gain due to oxidation obeys a parabolic law in the initial stage (Fig. 2). During this stage the oxidation rate is determined by the rate of O<sub>2</sub> diffusion through the oxide film forming on the alloy's surface. The thickness of the oxide layer increases in accordance with the parabolic law until, owing to the great difference in the unit volumes of the metal and oxide, there arise considerable stresses which lead to the cracking of the oxide and its peeling from the metal, whereupon the time-dependence of weight gain begins to obey a linear law. Noteworthy is the anomalous course of the temperature dependence of the oxidation rate: thus, at 1000°C this rate is higher than at 1100°C. At 1200°C the oxidation rate increases somewhat and approaches the values obtained at 1000°C. X-ray analysis established that under these conditions the oxidation rate of the alloys is chiefly determined by the structure of the scale, and in particular by the formation of the solid solution (Nb, W)<sub>2</sub>O<sub>5</sub>. Thus, the reason for the decrease in the oxidation rate of the alloys is that the diffusion of oxygen across the scale's lattice leads to a decrease in the oxide-to-metal volume ratio, hence resulting in a decrease in the peeling of the oxide film off the metal. Hence, by the same token, the observed

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ACCESSION NR: AT5023091

character of the temperature dependence of oxidation rate cannot be attributed to the retardation of the diffusion of oxygen through the scale. Orig. art. has: 4 figures, 1 table.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 01

SUB CODE: MM, 16

NO REF Sov: 005

OTHER: 009

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L 2660-66

ACCESSION NR: AT5023091

ENCLOSURE: 01

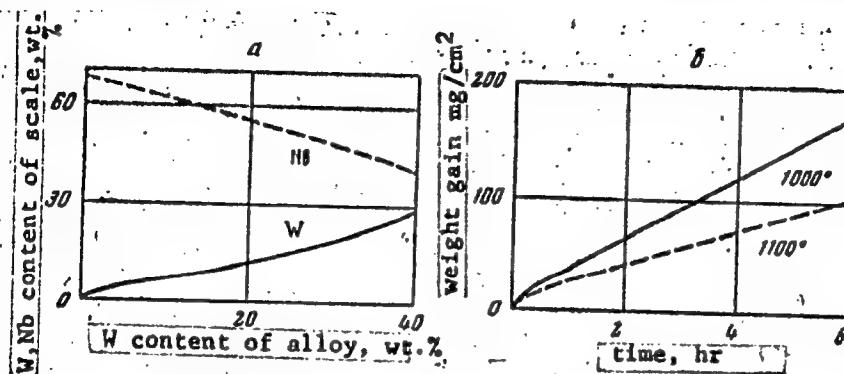


Fig. 2. Scale composition as a function of the W content of alloy (a) and of weight gain with time, Nb + 15% W at 1000-1100°C (b)

Card

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L 2659-66 EWP(e)/EWT(m)/EWP(w)/EPF(c)/EWP(i)/T/EWP(t)/EWP(b)/EWA(c) IJP(c)

JD/JG/WB/GS

ACCESSION NR: AT5023092

UR/0000/65/000/000/0125/0129

AUTHOR: Vasil'yeva, Ye. V.; Prokoshkin, D. A.; Belova, L. M.

TITLE: Certain properties of the alloys of niobium with boron

SOURCE: Problemy bol'shoy metallurgii i fizicheskoy khimii novykh splavov  
(Problems of large-scale metallurgy and physical chemistry of new alloys);  
k 100-letiyu so dnya rozhdeniya akademika M. A. Pavlova, Moscow, Izd-vo Nauka,  
1965, 125-129

TOPIC TAGS: niobium base alloy, boron containing alloy, alloy phase diagram,  
high temperature oxidation, X ray analysis

ABSTRACT: The properties of alloys based on the Nb-B system are virtually unknown although the constitution diagram of the binary Nb-B system is known (H. Novotny, F. Benezovsky, R. Kieffer, Zts. Metallkunde, 50, 7, 417, 1959); this diagram provides no definite information on the solubility of B in Nb and vice versa, since the solubility lines in both cases are plotted in broken-line form. It is also known that the oxidation rate of Nb at 600 and 800°C decreases as a result of alloying with B. But no other data on the properties of Nb-B alloys

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ACCESSION NR: AT5023092

are available. To fill this gap, the authors investigated the properties of the alloys of Nb with 0.01, 0.05, 0.1, 0.5, 1, 3, and 5 wt.% (increasing the B content above 5 wt.% leads to a marked embrittlement of the alloys). The microstructure of homogenized specimens of the alloys was examined with the aid of an etching agent consisting of 1 part  $\text{HNO}_3$  + 1 part HF. It was found that the phases over the grain boundaries, visible in the ingot structure of the alloys containing upward of 1% B became completely dissolved during homogenization annealing, with a marked polygonization. At 3% B the microstructure is characterized by a finer grain compared with the alloy containing 0.1% B. Boron markedly reduces the density of the alloys, despite its relatively small content. Reason: the extremely low density of B ( $2.34 \text{ g/cm}^3$ ) and boride compared with the density of niobium ( $8.57 \text{ g/cm}^3$ ). Oxidation resistance was determined by periodic weighing following exposure to air at 1000, 1100, and  $1200^\circ\text{C}$  for up to 20 hr. The oxidation products were subjected to X-ray analysis. At a B content of up to 1% the oxidation rate of Nb rises considerably ( $\sim 130 \text{ mg/cm}^2$ , whereas any further increase in the B content of the alloys leads to a decrease in this rate. According to X-ray findings, the structure of the scale of Nb with 1% B is a high-temperature modification of  $\beta\text{-Nb}_2\text{O}_5$ ; hence, the sharp increase in oxidation rate

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L 2659-66

ACCESSION NR: AT5023092

cannot be attributed to any changes in the scale structure and apparently is due to its microstructural features, particularly the large amount of second phase. The decrease in oxidation rate when the B content is raised above 1% is to some extent associated with the change in the structure of the alloys. Alloying with even small quantities of B (0.01 and 0.05%) causes a sharp increase in the hardness of Nb at room temperature but produces no effect at 1000°C -- unless the boron content is raised to 2% and higher. The higher the B content is, the lower is the rate of creep of the alloy. Orig. art. has: 4 figures, 1 table.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MM.

NO REF SOV: 002

OTHER: 002

Card 3/3

L 10388-65

Periodicals

SOURCE: AN 586P, Institut metalurgii. Issledovaniya metallov v zhidkosti i tverdom sostoyaniyakh. No. 1, 1966, p. 10-13. Reference: English translation.

Topic: Tungsten-niobium alloy, tungsten oxidation, tungsten niobium alloy oxidation, tungsten alloy oxidation kinetics.

ABSTRACT: Experiments have been conducted to determine the kinetics of oxidation of binary tungsten-niobium alloys containing from 1 to 50% Nb. Alloys were melted from pure tungsten and pure niobium in air at temperatures of 1300°C and in vacuum formed in air at 900, 1000, 1100, 1200, and 1300°C for 5-6 hr. It was found that at temperatures below 1300°C the oxidation rate deviates from the parabolic and becomes more linear the higher the test temperature. However, at 1300°C the oxidation of alloys with 15, 20, and

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L 10368-65

ACCESSION NR: AT4045998

30% Ni shows the greatest weight gain in all cases of unalloyed tungsten. The alloy with 1-3% W was found to be the most resistant to oxidation. Its weight gain is approximately 14.7 mg/m<sup>2</sup> at 1,000°C, 19.4 mg/m<sup>2</sup> at 1,100°C, 24.5 mg/m<sup>2</sup> at 1,200°C, and 32.5 mg/m<sup>2</sup> at 1300°C. Alloys with Al and Ti show the same behavior as tungsten. The alloys with 1-3% W are more resistant to oxidation than the alloys with 1-1% W. The structure of the oxide film is as follows: the oxide layer of alloys with 1-3% W has a laminated structure; the oxide layer of alloys with 1-1% and 3% W consists of fine lamellae. The alloy with 3% W has the thinnest oxide layer. The oxide layers on all alloys tested adhere more tightly to the metal than in the case of unalloyed tungsten; nevertheless, they can be removed easily. The tungsten content in the oxide layer gradually decreases and that is what gives it its typical layered structure. The addition of 1-3% W to the oxide layer, but affects the structure of the outermost oxide layer. This

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L 1327E-65 SWT(m)/EPF(n)-2/T-EPM(t)/CPA DR-27/EM(f) - R125 ANU(f)-2 ASU(m)-2  
JULY 1964

ACCESSION NR: AT4045999

S/0000/64/000/000/0246/C254

AUTHOR: Vasil'yeva, Ye. V.; Prokoshkin, D. A.

TITLE: Properties of ternary niobium-tantalum-molybdenum alloys

SOURCE: AN SSSR. Institut metallurgii. Issledovaniya metallov v zhidkem i tverdom sostoyaniyakh (Research of metals in liquid and solid states). Moscow, Izd-vo Nauka, 1964, 248-254

TOPIC TAGS: niobium, niobium alloy, alloy property, tantalum containing alloy, molybdenum containing alloy

ABSTRACT: Ten Nb-Mo-Ta alloys containing 10% Mo and 0.25—15 wt% Ta were investigated. The alloy specimens were melted in an arc furnace in argon and annealed at 2000°C for 10 hr (also in an argon atmosphere). Microscopic examination showed that all the alloys had a one-phase structure of a solid solution. The specific gravity of the alloys varied, depending on the composition, from 8.748 to 9.400 g/cm<sup>3</sup>, increasing with tantalum content. The oxidation tests conducted at 1000, 1100, and 1200°C for a total of 21 hr showed that the oxidation at the beginning followed a parabolic rate which later became linear.

Card 1/2

.. 107-8-65

ACCESSION NR: AT4045999

The addition of tantalum (up to 4%) to Nb-Mo alloy decreased somewhat the oxidation rate at all three temperatures tested. For instance, after 21 hr at 1000, 1100, and 1200C, an alloy with 0.5% Ta gained 151.3, 174.0, and 260.0 mg/cm<sup>2</sup>, respectively; and an alloy with 4% Ta gained 119.7, 137.1, and 243.0 mg/cm<sup>2</sup>, respectively. At 5% Ta the oxidation rate began to increase, remaining, however, below that of unalloyed niobium. X-ray diffraction patterns showed that the oxide layer on all the alloys tested was a solid solution of tantalum and molybdenum oxides in  $\beta$ -Nb<sub>2</sub>O<sub>5</sub>. The hardness of alloys at room and high temperatures and the creep strength at 1000C increased with increasing tantalum content. Orig. art. has: 5 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 18May64

ENCL: 00

SUB CODE: MM

NO REF SOV: 005

OTHER: 004

ATD PRESS: 3137

Card 2/2

PROKOSHKIN, D.A.; VASIL'YEVA, Ye.V.; RYABYSHEV, A.M.

Investigating the kinetics and the mechanism of the oxidation of  
niobium-molybdenum alloys. Issl. po zharoproch. splav. 10:233-239  
'63. (MIRA 17:2)

PROKOSHKIN, D.A.; VASIL'YEVA, Ye.V.; POPOV, N.N.

Properties of alloys of the system niobium - tungsten - titanium.  
Issl. po zharoproch. splav. 10:219-225 '63. (MIRA 17:2)

PROKOSHIKIN, Dmitriy Antonovich; VASIL'YEVA, Yelena Valentinovna;  
SAMARIN, A.M., ott. red.

[Niobium alloys] Splavy niobiia. Moskva, Izd-vo "Nauka,"  
1964. 330 p. (MIRA 17:4)

1. Chlen-korrespondent AN SSSR (for Samarin).

ACCESSION NR: AT4015958

S/2659/63/010/000/0233/0239

AUTHOR: Prokoshkin, D. A.; Vasil'yeva, Ye. V.; Ryaby\*shev, A. M.

TITLE: A study of the kinetics and mechanism of oxidation of Nb-Mo alloys

SOURCE: AN SSSR. Institut metallurgii. Issledovaniya po zharoprostochny\*m splavam, v. 10, 1963, 233-239

TOPIC TAGS: niobium alloy, molybdenum containing alloy, refractory alloy, alloy oxidation, alloy oxidation rate, alloy scale property, molybdenum trioxide

ABSTRACT: The authors considered the effects of various additions of Mo (0.5-50% by weight) on the rate of oxidation of Nb in free air at temperatures of 1000-1200C. Kinetics of high-temperature oxidation of Nb-Mo alloys were studied by continuous weighing. Finally, scale on the alloy was subjected to X-ray analysis. Test specimens were smelted in a vacuum arc furnace (non-consumable tungsten electrode, purified argon atmosphere, 200 to 300 mm Hg) and remelted several times to insure better fusion and uniform composition. Refractory characteristics were determined from weight increase after 1, 2, 3, 5 and 10 hours in free air at 1000, 1100 and 1200C. Rate of oxidation of Nb at these temperatures shows a decrease when Mo is alloyed (up to 10% by weight) with it (see

Card 1/12

ACCESSION NR: AT4013958

Figs. 1 and 2 in the Enclosure). Minimum rates of oxidation tend towards higher concentrations of Mo as temperature is increased. Deterioration of heat resistance characteristics at high concentrations of Mo is caused by formation of the volatile  $\text{MoO}_3$ . Oxidation exhibits a parabolic pattern during its initial stages, then becomes linear. X-ray analysis has shown the presence of a solid solution  $(\text{Nb}, \text{Mo})_{20_5}$ , whose lattice parameters decrease as the content of Mo increases. The scale of alloys with more than 5% by weight of Mo exhibits a monoclinic lattice, analogous to that of  $\beta\text{-Nb}_2\text{O}_5$ , but differing from it in its fine structure.  $\text{MoO}_3$  disappears from the scale at 1000-1200C. Orig. art. has: 4 graphs, 1 table.

ASSOCIATION: Institut metallurgii AN SSSR (Institute of Metallurgy)

SUBMITTED: 00

DATE ACQ: 27Feb64

ENCL: 02

SUB CODE: ML

NO REF Sov: 004

OTHER: 009

Card 2/42-

PROKOSHKIN, D.A.; VASIL'YEVA, Ye.V.

Oxidation of certain niobium-base binary alloys. Issl. po zharopr.  
splav. 9:164-171 '62. (MIRA 16:6)  
(Niobium alloys) (Oxidation)

PROKOSHKIN, D. A.; VASIL'YEVA, Ye. V.

Connection between hardness and mechanical properties of  
metals and alloys. Trudy Inst. met. no.13:131-142 '63.  
(MIRA 16:4)

(Metals—Testing) (Hardness)

PROKOSHKIN, D. A.; VASIL'YEVA, Ye. V.; Prinimala uchastiye AGIBALOVA, L. M.

Kinetics and the mechanism of niobium oxidation. Trudy Inst.  
met. no,13:143-151 '63. (MIRA 16:4)

(Niobium—Metallography)  
(Oxidation)

PROKOSHKIN, D.A.(Moskva); VASIL'YEVA, Ye.V.(Moskva)

Process and products of the oxidation of niobium-titanium alloys.

Izv. AN SSSR.Otd.tekh.nauk. Met. i topl. no.5:151-156 8-0'62.

(MIKA 15:10)

(Niobium-titanium alloys--Metallography)  
(Oxidation)

VASIL'YEVA, Ye.V.; NEDOPEKIN, T.K.; PETRUN'KIN, V.Ye.

Complex-forming capacity of mercapto compounds. Part 1: Comparative evaluation of the strength of complex compounds of dithiols with mercury, lead, cadmium, and zinc cations. Ukr.khim.zhur. 28 no.7:773-778 '62.  
(MIRA 15:12)

1. Unrainskiy nauchno-issledovatel'skiy sanitarno-khimicheskiy institut.  
(Organometallic compounds) (Dithiol)

VASIL'YEVA, Ye. V.

Investigating the effect of heat treatment and tensile strain  
at high temperatures on the microstructure of chromium-base  
alloys. Trudy Inst. met. no.13:122-130 '63.  
(MIRA 16:4)

(Chromium alloys—Metallography)  
(Metals, Effect of temperature on)

PROKOSHKIN, D. A.; VASIL'YEVA, Ye. V.; Prinimali uchastiye: VERGASOVA,  
L. L.; RYABYSHEV, A. M.

Investigating the oxidation of niobium-vanadium alloys. Trudy  
Inst. met. no.13:152-156 '63. (MIRA 16:4)

(Niobium-vanadium alloys—Metallography)  
(Oxidation)

PROKOSHKIN, D. A.; VASIL'YEVA, Yc. V.; RIABYSHEV, A. M.

Investigating the oxidation of niobium-titanium-zirconium  
alloys. Trudy Inst. met. no.13:157-162 '63.  
(MIRA 16:4)

(Niobium-titanium-zirconium alloys—Metallography)  
(Oxidation)

PROKOSHKIN, D.A. (Moskva); VASIL'YEVA, Ye.V. (Moskva); YANUSHKEVICH, V.Ya.  
(Moskva)

Investigating the oxidation of niobium-zirconium alloys. Izv. AN SSSR.  
Otd. tekhn. nauk. Met. i gor. delo no.1:186-190 Ja-F '63. (MIRA 16:3)  
(Niobium-zirconium alloys—Testing) (Oxidation)

VASIL'YEVA, Yelena Vladimirovna; LISETSKAYA, A.P., red.; PONOMAREVA,  
A.A., tekhn. red.

[Development of the food industry and the economics of public  
labor in the U.S.S.R.] Razvitiye pishchevoi promyshlennosti i  
ekonomika obshchestvennogo truda v SSSR. Moskva, Ekonomizdat,  
1962. 194 p. (MIRA 15:10)

(Food industry)  
(Labor and laboring classes)

VASIL'YEVA, Ye.V.; ZAGORSKIY, G., red.; PAVLOVA, S., tekhn. red.

[The most valuable achievements of efficient corn growers]  
Samoe tsennoe v opyte peredovykh kukuruzovodov. Moskva,  
Mosk. rabochii, 1961. 47 p. (MIRA 15:10)  
(Corn (Maize))

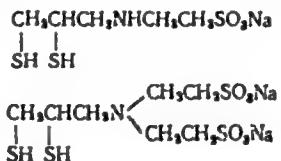
S/073/62/028/007/001/004  
E075/E436

AUTHORS: Vasil'yeva, Ye.V., Nedopekin, T.K., Petrun'kin, V.Ye.

TITLE: Investigation of the complex-forming capacity of mercapto-compounds. Part I. Comparative evaluation of the strength of complex compounds of dithiols with the cations of mercury, lead, cadmium and zinc

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, v.28, no.7, 1962,  
773-778

TEXT: The method of investigation was to decompose a dithizone complex of a metal with an aqueous dithiol. The extent of the decomposition was taken as a measure of the strength of the dithiol-metal complex. Thiols forming a stable complex with one of the metals form also stable complexes with the other metals. The most stable complexes (95% of dithizone complex decomposed) were formed by



Card 1/3

Investigation of the complex- ...

S/073/62/028/007/CG1/CG4  
E075/E436

In general, the most stable complexes are formed by sodium dimercaptoalkylsulphonates containing sulpho-sulphur or amine-nitrogen. The least stable compounds are formed by dimercaptoderivatives of malonic acid, aromatic thiols and heterocyclic thiols containing two non-aligned SH groups and monothiols. Transfer of SH in thiols of the fatty series from 2,3 to 1,3 position does not increase the strength of the complexes. Soviet produced thiol



SH SH

forms complexes with

Zn and Hg having similar stability to those formed by non-Soviet product BAL (2,3 dimercaptopropanol). The latter decomposes 75% of the dithizone complex. Many of the thiols form much stronger complexes with Hg than ethylenediaminetetraacetic acid. With Pb, Zn and Cd the acid gives complexes having similar stability to those formed by the best thiols. The dithizone method of determining complex stability is recommended for general usage. There are 4 tables.

Card 2/3

Investigation of the complex- ...

S/073/62/028/007/001/004  
E075/E436

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy sanitarno-khimicheskiy institut (Ukrainian Scientific Research Sanitary Chemistry Institute)

SUBMITTED: May 18, 1961

Card 3/3

SYSUYEV, Yu.A.; VASIL'YEVA, Ye.V.; KRASIL'NIKOVA, M.A.

Effect of plastic deformation on phase transformations in silicon  
and nickel steels. Izv.vys.ucheb.zav.; fiz. no.3:218-222 '60.  
(MIRA 13:7)

1. Fiziko-tekhnicheskiy institut pri Gor'kovskom gosuniversitete  
imeni N.I.Lobachevskogo.  
(Steel alloys--Metallography)

82341

1D.7500

S/139/60/000/03/038/045

E073/B335

AUTHORS: Sysuyev, Yu.A., Vasil'yeva, Ye.V. and  
Krasil'nikova, M.A.

TITLE: Influence of Plastic Deformation on Phase Transformations  
in Silicon and Nickel Steels

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,  
1960, No 3, pp 218 - 222 (USSR)

ABSTRACT: In earlier work of one of the authors and his team  
(Refs 1-3) it was shown that in simple carbon steels  
the cementite decomposes during plastic deformation  
and a metastable carbide  $\chi Fe_x C$  forms on the basis of  
the reaction:



It is obvious that in steel in which a new phase forms  
the change in the mechanical properties as a function  
of the degree of deformation differs from that of steel  
where there is no such transformation. In this paper,  
the authors attempt to elucidate the influence of plastic  
deformation on the changes in the cementite of steels

Card1/3

4

82341

S/159/60/000/03/038/045

E073/R335

Influence of Plastic Deformation on Phase Transformations in  
Silicon and Nickel Steels

alloyed with Si and Ni. The specimens studied were Ni and Si steels quenched from 1 150 °C and tempered for two hours at 600 °C (silicon steel) and 650 °C (nickel steel), respectively. The chemical analyses of the seven steels used in the experiments are given in a table, p 218. The phase transformations under the effect of plastic deformation were studied by means of a magnetic method. It was found that during plastic deformation steels alloyed with Si and Ni with an initial structure consisting of  $\alpha + Fe_3C$  phase transformations

may take place. As a result of the deformation, the cementite becomes transformed into an intermediate carbide  $XFe_xC$  (the Curie point being 260-265 °C), which becomes unstable on heating above 400 °C and ceases to exist at 600 °C. Comparison of the processes of graphitisation on the example of a Si steel after deformation and quenching confirms the conclusion that there is

Card 2/3

82341

S/139/60/000/03/038/045

E073/E335

Influence of Plastic Deformation on Phase Transformations in  
Silicon and Nickel Steels

a reduction in the speed of graphitisation in steel which has  
been deformed from all sides by non-uniform compression.  
There are 7 figures, 1 table and 6 references, all Soviet.

ASSOCIATION: Fiziko-tehnicheskiy institut pri Gor'kovskom  
gosuniversitete imeni N.I. Lobachevskogo (Physico-  
Technical Institute of Gor'kiy State University  
imени N.I. Lobachevskiy)

SUBMITTED: July 20, 1959

W

Card 3/3

MACHPOV, G.S.; VASIL'YEV, Yu.I.

Investigating the effect of technological parameters on the indices of the copper ore flotation process. Izv. vys. ucheb. zav.; tsvet. met. 7 no.6:131-135 '64.

(MIRA 18:3)

I. Ural'skiy nauchno-issledovatel'skiy i proyektnyy institut obogashcheniya i mekhanicheskoy obrabotki poleznykh iskopayemykh.

5

PENTKOVSKY, A.I., V. V. KALININ, Tauta.

Level of 17-hydroxyprogesterone in the saliva and nasal exudate  
in the urine in patients with minor forms of pulmonary tuberculosis.  
Izobol. tub. 31 no.11.53. no. 163

(1971)

I. Ia Instituta meditsinskoy kliniki (Lopat' i Klinicheskaya Poliklinika)  
Sechenova (dir. R.V. Basmakyan), Tauta.

VASIL'YEVA, Yu.S., kand.med.nauk

Determination of thyroid function in tuberculosis of the lungs  
by the basal metabolism method and radioactive indication.  
Probl. tub. 41 no.6:72-75 '63. (MIRA 17:2)

1. Iz kliniki legochnogo tuberkuleza (zav. V.K.Dargevich)  
Nauchno-issledovatel'skogo instituta meditsinskoy klimatologii  
i klimatoterapii imeni Sechenova (dir. B.V.Bogutskiy), Yalta.

VASIL'YEVA, Z.A. (Barsukova)

Effect of a sharp increase of positive and inhibitory  
conditioned stimuli on the higher nervous activity in  
dogs. Zhur. vys. nerv. deiat. 11 no.6:1032-1037 N-D '61.  
(MIRA 15:3)

1. Pavlov Physiological Department, Institute of Experimental  
Medicine, U.S.S.R. Academy of Medical Sciences, Leningrad.  
(CONDITIONED RESPONSE).

VAYNSHTEYN, B.P.; KRUGLIKOV, V.Ya.; RAPOPORT, I.B.; VASIL'YEVA, Z.A.;  
KAGAN, L.Kh.; PLOKHINSKAYA, Ye.A.; VOLYNSKIY, A.V.; MUZOVSKIY,  
V.V.; KLEVTSOVA, V.P.; Prinimali uchastiye: MICHAN, A.I.;  
KONOVAL'CHIKOV, L.D.; AYNSHTEYN, V.G.; KVASHA, V.B.; CHELYANOVA,  
D.P.; ZAYTSEVA, A.F.; ANDREYEVA, T.A.

New way to synthesize oxygen compounds from carbon monoxide  
and hydrogen over iron-copper catalysts. Trudy VNII NP no.  
9:177-196 '63. (MIRA 17:6)

ROMAZANOVICH, N.P.; VASIL'YEVA, Z.A.

Production of esters of  $\beta$ -aroxypropionic acids. Ukr. khim. zhur.  
27 no.4:548-549 '61. (MIRA 14:7)  
(Propionic acid)

VASIL'YEVIME, D.P. [Vasileviene, D.P.]; GIRDZIYAUSKAS, V.I. [Girdziuskae, V.I.]

Use of a selection method in the production of dermal smallpox  
detritus. Vop.virus. 4 no.3:353-355 My-Je '59.

(MIREA 12:8)

1. Vil'nyusskiy institut epidemiologii i gigiyeny i meditsinskij  
fakul'tet Vil'nyuskogo gosudarstvennogo universiteta  
imeni V.Kapeukasa.

(SMALLPOX, immunol.  
vaccine, selection of calves (kis))

VASILL'YEVA, Yu.M., kand.med.nauk; PEREVOCHIKOVA, N.I., kand.med.nauk

Seventh International Cancer Congress in London. Vest. AMN SSSR  
14 no.3:70-76 '59. (MIRA 12:3)  
(LONDON—CANCER—CONGRESSES)

VASIL'YEVA, Yu. S., Cand Med Sci -- (diss) "Course of the tubercular process in sick persons with altered function of the thyroid gland under sanatorium and climate treatment on the southern shore of the Crimea." Yalta, 1960. 16 pp; (Crimea State Medical Inst im I. V. Stalin); 200 copies; price not given; (KL, 29-60, 127)

KHASKIN, I. S., T. N. YEVLEV, L. A.

: reduction of  $d_3\beta$ -trichloropropionitrile and  $d, d, \beta$ -trichloropropionic acid. Khim. prom. 41 no. 8, 577-578 Ag '65.  
(MIRA 18:9)

VASIL'YEVA, Z. A.

Kraslovskii coal. N. M. Karavayev and Z. A. Vasileva.  
Khim. Tverdogo Toplitsa, 2(1) 37 (1943). Analysis and  
carbonization tests, results of which are given in detail,  
show that this coal is satisfactory for the manuf. of coke.  
A. A. Boethlingk

BIRYUKOV, Dmitriy Andreyevich, prof., ovt. red.; GOLIKOV, N.V., red.;  
ZIMKIN, N.V., red.; KARAMYAN, A.I., red.; KUPALOV, P.S., red.;  
LAPINA, I.A., red.; VASIL'YEVA, Z.A., red.; KHARASH, G.A., tekhn.  
red.

[Problems of the physiology and pathology of higher nervous activity]  
Problemy fiziologii i patologii vysshei nervnoi deiatel'nosti.  
Pod obshchei red. D.A.Biriukova. Leningrad, Medgiz. No.2. 1963.  
192 p. (MIRA 16:12)

1. Akademiya meditsinskikh nauk SSSR, Moscow. 2. Deystvitel'nyy  
chlen AMN SSSR (for Biryukov).  
(NERVOUS SYSTEM)

KVASNIKOV, Ye.I. [Kvasnykov, YE.I.]; BERNSTEYN, A.F.; VASIL'YEVA, Z.A.  
[Vasyl'ieva, Z.A.]; SUKHOV, V.V.

Use of lactic acid bacteria for the biological preservation  
of pulp. Mikrobiol. zhur. 25 no. 6:54-58 (1953) (MIRA 17:87)

AYRAPET'YANTS, Ervand Shamirovich; GRACHEV, Iosif Ivanovich;  
TULBAYEV, Peysen Tulbayevich; VASIL'YEVA, Z.A., red.  
izd-va; KRUGLIKOV, N.A., tekhn. red.

[New studies on the physiology of farm animals] Novye is-  
sledovaniia po fiziologii sel'skokhoziaistvennykh zhivot-  
nykh. Moskva, Izd-vo AN SSSR, 1963. 94 p.

(Conditioned response) (Veterinary physiology) (MIRA 17:1)

KONONOVA, Yelizaveta Pigasiyevna; VASIL'YEVA, Z.A., red.; SAFRONOVA,  
I.M., tekhn. red.

[Frontal region of the cerebrum] Lobnaya oblast' bol'shogo  
mozga. Leningrad, Medgiz, 1962. 175 p. (MIRA 16:5)  
(BRAIN)

KHANANASHVILI, Mikhail Mikhaylovich; VASIL'YEVA, Z.A., red.;  
BUGROVA, T.I., tek'n.red.

[Experimental study of the central mechanisms of the visual  
function] Eksperimental'noe issledovanie tsentral'nykh  
mekhanizmov zritel'noi funktsii. Leningrad, Medgiz, 1962.  
179 p. (MIRA 15:5)  
(BRAIN—LOCALIZATION OF FUNCTIONS)  
(VISION)

ABULADZE, Kalenik Sardionovich; VASIL'YEVA, Z.A., red.; ZHUNAYEVA, Z.V.,  
tekhn. red.

[The function of paired organs] K voprosu o funktsii parnykh organov.  
Leningrad, Medgiz, 1961. 102 p. (MIRA 14:11)  
(REFLEXES) (SYMMETRY (BIOLOGY))

KUPALOV, Petr Stepanovich, prof., otv.red.; GOLIKOV, N.V., red.; KASATKIN, H.I., red.; KARAMYAN, A.I., red.; LAPINA, I.A., red.; VASIL'YEVA, Z.A., red.; RUL'KOVA, M.S., tekhn.red.

[Problems in the physiology and pathology of the higher nervous activity; successes and prospects for development] Problemy fiziologii i patologii vysshei nervnoi deiatel'nosti; dostizheniya i perspektivy razvitiia. Pod obshchei red. P.S.Kupelova. Leningrad, Gos.izd-vo med.lit-ry Medgiz, Leningr.otd., 1960. 238 p.

(MIRA 13:12)

1. Akademiya meditsinskikh nauk SSSR. Moscow. 2. Deystvitel'nyy chlen AMN SSSR (for Kupelov).  
(NERVOUS SYSTEM)

VASIL'YEVA ZA

BC

A-1

Kinetics of dehydrogenation of decalin in  
presence of various catalysts. IV. V. I. Kanshev  
and Z. A. Vasilevskaya [J. Phys. Chem. Russ., 1938, 11,  
670-677; cf. A., 1938, 712].—Three industrial  
catalysts were used between 250° and 500°. The  
catalyst was used between 250° and 500°. The  
temp. range was 13-14 km. J. J. B.

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

ITEM NUMBER	SEARCHED	INDEXED	SERIALIZED	FILED
SEARCHED FILED	SEARCHED INDEXED	SERIALIZED FILED	SERIALIZED FILED	SEARCHED INDEXED

L00908-66 EWA(j)/EWT(m)/EPF(c)/EWP(j)/EWA(b)-2 RPL WW/RM

ACCESSION NR: AP5019677

UR/0064/65/000/008/0577/0578  
547.239.23'113.07+547.297.3.07

17

AUTHORS: Khaskin, I. G.; Vasil'yeva, Z. A.

TITLE: Production of  $\alpha, \alpha, \beta$ -trichloropropionitrile and  $\alpha, \alpha, \beta$ -trichloropropionic acid

SOURCE: Khimicheskaya promyshlennost', no. 8, 1965, 577-578

TOPIC TAGS: chlorination, chlorine organic compound, trichloropropionitrile, trichloropropionic acid

ABSTRACT: The conditions for the synthesis of the herbicides  $\alpha, \alpha, \beta$ -trichloropropionitrile (A),  $\alpha, \alpha, \beta$ -trichloropropionic acid (B), and the sodium salt of B were studied. The synthesis is based on the chlorination of acrylonitrile with chlorine gas in the presence of tertiary aliphatic amines, diaoxyloamines, or their salts at 40°C. The yield of A was 90-98%. B is derived from A by reaction with 73% sulfuric acid at 120-130°C; yield 95%. The sodium salt of B is obtained by neutralizing B with 40-50% sodium hydroxide. Orig. art. has: 2 equations.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: OC

NO REF SOV: 001

OTHER: 023

Card 1/1 BP

DOMAN, N.G.; VASIL'YEVA, Z.A.; ROMANOVA, A.K.; ZAVARZIN, G.A.

Assimilation of carbon of monocarboxylic compounds by budding  
bacteria Hyphomicrobium vulgare Stuts. et Hartleb. Mikrobi-  
logija 24 no.1:3-11 Ja-F '65. (MIRA 18:7)

1. Institut biokhimii AN SSSR imeni A.N. Bakha i Institut mikro-  
biologii AN SSSR.

"APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001859010014-2

ASST MESA, Z A.

APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001859010014-2"

BORZUNOVA, Aleksandra Stepanovna; BIRYUKOV, Dmitriy Andreyevich;  
VASYUKOV, Nikolay Mikhaylovich; VASIL'YEVA, Z.A., red.;  
KHARASH, G.A., tekhn. red.

[Theoretical fundamentals of medical expertise on the  
capacity for work] O teoreticheskikh osnovakh vrachebno-  
trudovoi ekspertizy. Leningrad, Medgiz, 1963. 185 p.  
(MIRA 17:1)

ZAL'TSMAN, Genrikh L'vovich; KREPS, Ye.M., red.; VASIL'YEVA, Z.A., red.; CHU-NAYEVA, Z.V., tekhn. red.

[Physiological bases for human life under conditions of increased atmospheric pressure] Fiziologicheskie osnovy prebyvaniia cheloveka v usloviakh povyshennogo davleniya gazovoi sredy. Pod red. E.M.Krepsa. Leningrad, Gos. izd-vo med. lit-ry Medgiz, Leningr. otd-nie, 1961. 185 p. (MIRA 14:7)

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(ATMOSPHERIC PRESSURE—PHYSIOLOGICAL EFFECT)

VASIL'YEVA, Z.A. (Barsukova)

Interaction of extictive and supraliminal inhibition. Biul.  
eksp. biol. i med. 50 no.7:3-7 Jl '60. (MIRA 14:5)

1. Iz fiziologicheskogo otdela imeni I.P.Pavlova Instituta  
eksperimental'noy meditsiny AMN SSSR, Leningrad. Predstavlena  
deystvitel'nym chlenom AMN SSSR P.S.Kupalovym.  
(INHIBITION)

KOSTENETSKAYA, Nataliya Anatol'yevna; V. M. [red.], ... , red.

[Conditioned reflex regulation of the cerebral cortex tonus] Uslovnoreflektornaya regul'atsiya tonusa kory gumevnogo mозга. Leningrad, Meditsina, 1965. 114 p.  
(KIA 18:3)

VASIL'YEVA, Z.A.

Effect of changes in the intensity of the conditioned stimulus  
on the retarded conditioned reflex. Zhur. vys. nerv. deiat. 16  
no. 1:28-33 Ja-F '66 (MIRA 19:2)

1. Fiziologicheskiy otdel imeni I.P. Pavlova Instituta eksperi-  
mental'noy meditsiny AMN SSSR. Submitted September 29, 1964.

VASIL'YEVA, Z.F.

Problem of hemolytic disease in newborn infants in ABO-incompatibility. Pediatriia 38 no.10:37-40 O '60. (MIRA 13:11)

1. Iz izoserologicheskoy laboratorii (zav. - doktor meditsinskikh nauk T.G. Solov'yeva, nauchnyy rukovoditel' instituta - chlen-korrespondent Akademii meditsinskikh nauk SSSR prof. A.N. Filatov) Leningradskogo ordena Trudovogo Krasnogo Znameni nauchno-issledovatel'skogo instituta perelivaniya krovi (dir. - dotsent A.D. Belyakov).

(ERYTHROBLASTOSIS FETAL)

SOLOV'YEVA, T.G.; VASIL'YEVA, Z.F.

Production of an antiglobulin precipitating serum. Zhur. mikrobiol.  
epid. i immun. 31 no. 5:76-78 My '60. (MIRA 13:10)

1. Iz Leningradskogo instituta perelivaniya krovi.  
(SERUM) (GLOBULIN)

VASIL'YEVA, Z. F. Cand Med Sci --(diss) "Importance of Rhesus-Factors  
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Institute for the Advanced Training of Physicians im S. M. Kirov) (KL, 47/60, 106)

VASIL'YEVA, Z.F.

Method for detection of Rho(D) agglutinogen in blood stains. Sud.-  
med.ekspert. 2 no.35-39 O-D '59. (MIRA 13:5)

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Solov'yeva) Leningradskogo nauchno-issledovatel'skogo instituta  
perelivaniya krovi i kafedra sudebnoy meditsiny (zav. - dotsent  
A.D. Adrianov) Leningradskogo instituta usovershenstvovaniya  
vrachey imeni S.M. Kirova.  
(AGGLUTINOGENS) (CHEMISTRY, LEGAL)

VASIL'YEVA, Z.G.; GRANOVSAYA, A.A.; MAKARYCHEVA, Ye.P.; TAPEROVA,  
A.A.; FRIDENBERG, Ye.E.; DANILEVICH, T.A., red.

[Laboratory work in general chemistry; semimicroanalysis]  
Laboratornyi praktikum po obshchei khimii; polumikrometod.  
2. izd. Moskva, Khimiia, 1965. 346 p. (MIRA 18:7)

Variolos YEVN, Vol.

Changes in the sensitivity of white mice to the toxins of the  
plague microbe under the influence of vitamin B<sub>1</sub>. Dokl. Akad.  
gos. nauch.-tekhn. protivobuk. inst. no.5528-90 163  
(VIRU 1951)

*VASIL' YEVH, Z.I.*

AUTHOR            TOMASHOV, N.D., VEDENEYEVA, M.A., VASIL' YEV A, Z.I.      32-6-12/54  
TITLE            The Electro-Chemical Method for the Determination of Anticorrosive Strength in Welding Joints of Alloyed Steels.  
                  (Elektrokhimicheskiy metod opredeleniya korroziionnyy stoykosti svarnykh sovremeniy nizkolegirovannykh stalei -Russian)  
PERIODICAL      Zavodskaya Laboratoriya, 1957, Vol 23, Nr 6, pp 683-686 (U.S.S.R.)  
                  Received 7/1957    Reviewed 8/1957  
ABSTRACT        For the determination of the anticorrosive strength of deeply alloyed steels in welding joints as well as in those parts which are untouched by welding the application of the electrochemical method is recommended. This method is based upon the ratio of the electrochemical potentials in various zones of the welded steel object. The welding joint in contact with electrolyte forms a multi-electrode macrogalvanic element, the electrodes of which are: basic metal, welding seams, zones of thermal effect and zones of maximum voltage concentrations. Nonuniformity of the voltage distribution etc. caused by chemical as well as structural differences are formed on the metal surface of microgalvanic pairs, which served as research objects. Such experiments could prove to be dangerous if the anode of the welding seam becomes ground metal. In this case the tendency of the welding seam to corrode may be increased automatically, which, however, is due to the time taken by the experiment. An early determination of anticorrosive strength

Card 1/2

*Moscow Inst. Steel..*

32-6-12/54

The Electro-Chemical Method for the Determination of Antiscorro-  
sive Strength in Welding Joints of Alloyed Steels.  
is described by the paper and the peculiarities are dealt with  
in detail.  
(With 6 illustrations).

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DOMARADSKIY, I.V.; VASIL'YEVA, Z.I.; APARIN, G.P.

Antifermenative action of antiplague sera. Izv. Irk. gos. nauch.-  
issl. protivochum. inst. 21:122-127 '59. (MIRA 14:1)  
(SERUM) (PLAQUE)

DOMARADSKIY, I.V.; YAROMYUK, G.A.; VASIL'YEVA, Z.I.

Relation of plague microbe to hyaluronic acid and the presence of  
of the spreading factor in the microbe. Zhur. mikrobiol. epid. i  
immun. 31 no.7:113-117 Jl '60. (MIRA 13:9)

1. Iz Irkutskogo nauchno-issledovatel'skogo protivochumnogo instituta  
Ministerstva zdravookhraneniya SSSR.  
(PASTEURELLA PESTIS) (HYALURONIDASE)

DOMARADSKIY, I.V.; VASIL'YEVA, Z.I.; APARIN, G.P.

Antienzyme activity of antirabies sera; author's abstract. Zhur.  
mikrobiol., epid.i immun. 30 no.11:111-112 N '59. (MIRA 13:3)

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(RABIES) (ENZYMES)

TROFIMENKO, N.Z.; VASIL'YEVA, Z.I.; KROTOVA, V.A.

Change in the amino acid composition of the nutrient medium  
in deep culturing of the plague microbe. Report No.1. Izv. Irk.  
gos. nauch.-issel. protivochum. inst. 18:117-123 '58.

(AMINO ACID METABOLISM) (PASTEURELLA PESTIS) (MIRA 13:7)

BUTLEROV, Aleksandr Mikhaylovich [1828-1886]; ANGERT, G.A. [translator];  
MOMMA, M. [translator]; SOKOLOVSKIY, A.A. [translator]; VASIL'Yeva,  
Z.H. [translator]; ALEKSANDROV, L. [translator]; KLADO, T.N.  
[translator]; PLATE, A.F. [translator], red.; POGODIN, S.A.,  
otv.red.; BYKOV, G.V., red.; RASKIN, N.M., red.; POLYAKOVA, T.V.,  
tekhn.red.

[A.M.Butlerov; his scientific and pedagogical endesvors. A collection  
of documents] A.M.Butlerov; nauchnais i pedagogicheskaiia deiatel'-  
nost'. Sbornik dokumentov. Moskva, 1961. 416 p.

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(Butlerov, Aleksandr Mikhailovich, 1828-1886)

YEMEL'YANOV, N.P.; VASIL'YEVA, Z.N.; TABORISSKAYA, Ye.A.

Dehydration of 1-cyclohexen-3-ol and -tetalol to  
1,3-cyclohexadiene and 1,2-dihydroxynaphthalene on alkaline  
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821-824 D '63. (MIRA 17:8)

1. Institut fiziko-organicheskoy khimii AN BSSR. Predstavлено  
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RUDAKOVA, N.Ya., kand.tekhn.nauk; POLISHCHUK, S.A., kand.tekhn.nauk;  
SHEREMETA, B.K., kand.tekhn.nauk; GAMOLINA, L.N., inzh.;  
STANITSKAYA, Z.N., inzh.; GERMASH, E.A., inzh.; VASIL'YEVA,  
Z.N., inzh.

Possibility of production of transformer oils from the petroleum  
of the Okhinskiy and Katangli fields. Nauch.zap.Ukrniiproekta  
no.8:64-70 '62. (MIRA 16:1)

(Insulating oils) (Petroleum—Refining)

FAYERMAN, N.N.; MIKHAYLOVA, A.M.; VASIL'YEVA, Z.P.

Diagnostic value of the tellurite test in faacial diphtheria.  
Zhur.mikrobiol.epid. i immun., supplement for 1956:45 '57 (MIRA 11:3)

1. Iz kliniki detskikh infektsionnykh bolezney Gor'kovskogo  
meditsinskogo instituta imeni S.M.Kirova na baze detskoy infektsionnoy  
bol'nitsy No.8 i Infektsionnoy bol'nitsy No.3.  
(DIPHTHERIA) (TELLURIUM)

VASIL' EVA

## PROCESSES AND PROPERTIES INDEX

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**Effect of metabolites or the healthy and sick lung on the organs' oxidative processes.** G. E. Platov and Z. S. Vas'eva. *Russ. Akad. Med. Nauk. Tr. No. 4-5, 40-7* (1943); cf. *C.A. 39, 1082*. Expts. were carried out in a rabbit organ. Metabolites increase cell respiration 100,000 times. They stimulate the respiration of various organs to different extents. The liver and heart were the most activated; no effect was observed in suprarenal glands. Pulmonary metabolites also activated glycolysis. The activity of process of stimulation during tuberculosis infection may occur independently of the sympathetic nervous system by the direct action of metabolites on organ cells. Sonya G. Machelis

the direct action of Mr. Sanya C. Blackham.

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VASIL'YEVA, Z.S.

Methods of washing, filling, and sterilizing ampules.  
Med.prom. 16 no.5:33-36 My '62. (MIRA 15:9)

1. Moskovskiy khimiko-farmatsevticheskiy zavod imeni N.A.  
Semashko.

(DRUG INDUSTRY)

CA VASIL'YEVA, Z. V.

7D

**Intensity of photosynthesis in aconite and kidney bean.**  
Z. V. Vasileva and M. I. Kurganova. *Doklady Akad. Nauk S.S.R.* 72, 961-3 (1950). — Detn. of photosynthetic activity (by detn. of CO<sub>2</sub> assimilation) in *Aconitum feroxii* and *Phaseolus vulgaris* at 20°-30° in flowering stage with 20 min. exposures to light show that the kidney bean has a much higher photosynthetic intensity, averaging some 50% higher over several day periods with detns. made in various periods of a day. G. M. Kosolapoff

ПОДДЕРЖКА, Т. В.

"Dynamics of Mycroclimate and Activity of Insects of Stepanovskoye Village of the Moscow Oblast." Cand Med Sci, Moscow State Univ. Applied Ent., 1953, Dissertation (Referativnyy Zhurnal--Medicina, No. 4, Jun 1954)

SS: SEM 146, 19 Aug 1954

УДК 571.55

USSR/Physiology of Plants. Photosynthesis.

I-2

Abs Jour: Ref. Zhur-Biologiya, No 1, 1958, 1127.

Author : Vasil'yeva, Z.V.

Inst : Main Botanical Garden of the Acad Sci USSR

Title : Photosynthesis in Several Sorts of Grape Under Moscow Oblast' Conditions.

Orig Pub: Byul. Gl. botan. sada A.N. SSSR, 1956, No 24, 51-58.

**Abstract:** The intensity of photosynthesis was determined over the course of the vegetation period by the halves method for four types of grape (amurkiy, Al'fa, Buytur, Korinka Michurina) of Moscow Oblast'. For the investigations samples of leaves of the middle stage were taken from bushes of three or four-year growth. The loss of organic substances from the leaves was calculated at the same time. During the day the maximum intensity of photosynthesis was seen to be: for Amurkiy and Al'fa sorts -- from 7:00 to 11:00 A.M. and for the Buytur and Korinka Michurina

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USSR/Physiology of Plants. Photosynthesis.

Abs Jour: Ref. Zhur-Biologiya, No 1, 1958, 1127.

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sorts -- from 11:00 A.M. to 1:00 P.M. For all varieties the intensity of photosynthesis decreased toward the end of vegetation, and dropped sharply in late August. The early ripening varieties, Al'fa and Amurskiy, possessed in the first half of the vegetation period high intensity of photosynthesis in comparison with other types.

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